

ELAEAGNACEAE

- Elaeagnus glabra* Thunb.
Elaeagnus macrophylla Thunb.

THYMELAEACEAE

- Daphne cannabina* Wall.

ARALIACEAE

- Aralia chinensis* var. *glabrescens* L.
Fatsia japonica Decne. & Planch.
Gilibertia trifida Mak.
Schefflera octophylla Harms.

CORNACEAE

- Aucuba japonica* Thunb.

ERICACEAE

- Rhododendron indicum* var. *eriocarpum* Hay.
Rhododendron Tashiroi Maxim.
Vaccinium bracteatum Thunb.

MYRSINACEAE

- Ardisia crispa* DC.
Ardisia hortorum Maxim.
Ardisia Sieboldii Miq.
Maesa japonica var. *latifolia* Miq.
Myrsine neriifolia Mez.

SAPOTACEAE

- Sideroxylon ferrugineum* Hook. & Arn.

SYMPLOCACEAE

- Symplocos caudata* Wall.
Symplocos lucida S. & Z.
Symplocos neriifolia S. & Z.

STYRACACEAE

- Styrax japonicus* S. & Z.

OLEACEAE

- Fraxinus insularis* Hemsl.
Ligustrum japonicum S. & Z.
Ligustrum sp.
Osmanthus bracteatus Matsum.

APOCYNACEAE

- Trachelospermum divaricatum* K. Schum.

VERBENACEAE

- Callicarpa japonica* Thunb.
Clerodendron trichotomum Thunb.
Vitex ovata Thunb.
Vitex trifoliolata L.

BORAGINACEAE

- Tournefortia argentea* L. f.

RUBIACEAE

- Damnacanthus indicus* var. *genuinus* Mak.
Gardenia augusta Merr.
Lasianthus japonicus Miq.
Mussaenda parviflora Miq.
Psychotria elliptica Ker-Gawl.

CAPRIFOLIACEAE

- Lonicera affinis* var. *pubescens* Maxim.
Viburnum japonicum Spr.
Viburnum odoratissimum Ker-Gawl.

GOODENIACEAE

- Scaevola Koenigii* Vahl

FOUR NEW CONIFERS FROM KOREA

E. H. WILSON

- Thuja koraiensis* Nakai in Tokyo Bot. Mag. xxxiii. November (1919).
 — *Thuja japonica* Komarov in Act. Hort. Petrop. xx. 206 (Pl. Mandsh. i.) (1901), non Maximowicz. — Nakai, Veget. Mt. Waigolbon, 32 (1916).
 — *Thuja Standishii* Nakai in Jour. Coll. Sci. Tokyo, xxxi. 382 (Fl. Kor. ii.) (1911), non Carrière. — *Thuja odorata* Doi in Tokyo Bot. Mag. xxix. [422] (1915), nom. nudum, non Marshall. — *Thuja kongoensis*¹ Doi apud Nakai, Rep. Veget. Diamond Mts. 163 (1918), nom. nudum.

¹ Such a specific name derived from Kongo-san or Diamond Mountains in Korea is apt to mislead people into assuming that the plant is from the Congo (Kongo) region in Africa; to avoid this contingency I suggested to Dr. Nakai that it be rejected.

Arbor gracilis, 6-9-metralis, trunco 0.5-0.75 m. in circuitu, cortice tenui, squamoso, purpureo-brunneo (chocolate-brown), coma anguste pyramidalis, vel saepius frutex ramis patentibus, habitu indistincto, ramis sparsis decumbentibus, rarius horizontaliter patentibus, apice ascendentibus; ramuli applanati, frondosi. Folia compressa, in turionibus triangularia vel triangulari-ovata, acuminata, dorso glandulifera, demum brunnescentia et ad quartum annum persistentia, ea ramulorum lateralium deltoidea vel obdeltoidea vel rhomboidea, acutiuscula vel obtusa, supra lucide viridia et glandulifera, subtus glauca. Strobili erecti, ovales, circiter 1 cm. longi et 6 mm. diam., avellanacei; squamae tenues, 6, paria duo inferiora fertilia, eae paris infimilate, paris superioris fertilium anguste obovatae, 7 mm. longae et 4-5 mm. latae, acutiusculae vel rotundatae, margine puberulae, dorso paulo infra apicem mucrone leviter recurvo nigrescente instructae; semina ala inclusa ovalia, 4 mm. longa et 2.5-3 mm. lata, profunde emarginata, ut videtur 10 in strobilo quoque.¹

KOREA: prov. Kogen, Kongo-san, summit of Miroku-ho, alt. 1500 m., October 12, 1917, *E. H. Wilson* (No. 9244, type); same locality, alt. 1000-1500 m., July 6, 1918, *E. H. Wilson* (No. 10,481); same range of mountains, round Hermitage, alt. 800-1000 m., September 13, 1918, *E. H. Wilson* (No. 10,725); prov. North Heian, near Kanin, alt. 1200-1300 m., September 11, 1917, *E. H. Wilson* (No. 9138); same province, near Nanshatongu, September 1, 1917, *E. H. Wilson* (No. 9088); prov. South Kankeyo, Laoling-san, middle and upper slopes, alt. 1000-2000 m., September 17, 1917, *E. H. Wilson* (No. 9175).

This is a very interesting addition to the genus and is remarkable in its variation in habit from a sprawling shrub of nondescript shape to a slender, graceful, narrow-pyramidal tree. The Japanese species (*T. Standishii* Carr.) to which it is most closely related and with which it has been confused by Komarov and others, is always a tree and is sometimes as much as 17 meters tall with a trunk 3.5 meters in girth; its branches are never decumbent, its leaves are uniformly smaller, less compressed, green on both surfaces and the fruit is broader and of a more mahogany-brown color, and the cone-scales are thicker.

The Korean Thuja is found on the middle and upper slopes of all the higher mountains, except those of volcanic origin, from the Diamond Mts. northward. On many peaks of the Diamond Mts. it is abundant and is especially so on Miroku-ho and in the descent of the Nemon-rei pass toward Makaen-an Temple. Usually it forms an impenetrable tangle from 0.3-2 meters tall, but in sheltered ravines it is often a pretty tree from 1.5-3 meters tall and from 15-30 centimeters in girth of trunk. The wood is moderately heavy, reddish brown with white sap-wood and is very fragrant. In forests its growth judging by the annual rings is very slow. Its habit of growth on the forest floor resembles that of *Thujopsis dolabrata* S. & Z. The foliage is very white below and often the whole plant has a decided bluish appearance. The branches grow downward and outward and are

¹ When this number was already in page form I received a letter from Dr. Nakai informing me that he had described this Thuja in the November number of the Tokyo Botanical Magazine under the name of *Thuja koraiensis* Nakai.

upturned toward the end. The habit of the trees is decidedly graceful, but the branches are sparse. Near the village of Nanshatongu, on the borders of South Kankyo and North Heian provinces, in forests of Spruce and Fir this Thuja is abundant and small, slender trees are common. In the middle upper slopes of Laoling-san — a peak some 2000 meters high — in northern Korea it forms an undergrowth to *Pinus pumila* Regel. As a garden plant this Thuja should be valuable as a ground cover and also as a shrub or small tree. I collected seeds on the Diamond Mts. in 1917 and the plants raised from them are now growing well in the Arnold Arboretum.

Abies koreana, sp. nov. — *Abies nephrolepis* Nakai, Rep. Veget. Chirisan, 23, no. 27 (1915); Rep. Veget. Quelpaert Isl. 13, no. 142 (1915), non Maximowicz.

Arbor 10–15-metralis, trunco 1–2.5 m. in circuitu, cortice arborum juvenilium purpuracente ad pallide cinereo, laevi, lenticellis prominentibus transversalibus et pustulis resiniferis paucis vel nullis praedito, in arboribus vetustis in lamellas irregulares asperas fisso, cinereo-albido subtus rubro-brunneo; rami numerosi, patentes; ramuli leviter sulcati, sparse cinereo-pubescentes, demum glabri, initio pallidi, demum purpurascens; gemmae subglobosae, leviter resinosae, lucide castaneo-brunneae, perulis membranaceis obtusis vel acutiusculis per plures annos basin ramulorum cingentibus persistentibus. Folia congesta, flexilia, 0.8–2 cm., pleraque 1–1.5 cm. longa et 2–2.5 mm. lata, pleraque apicem versus latiora, rotundata et emarginata, interdum integra et mucrone pungente instructa, supra canaliculata, lucida et intense viridia, subtus albida vel pallida, carinata, margine revoluta; ductus resiniferi duo, laterales, sub epidermate. Strobili violaceo-purpurei, bracteis stramineis exsertis et reflexis muniti, globulis resinosis paucis vel nullis praediti, cylindrici, 5–7 cm. longi et 2.5–2.8 cm. diam., apice applanati et saepe leviter umbilicati; squamae reniformes, 1.7–2 cm. latae et unguiculo excluso 6–8 mm. altae, rotundatae, leviter inflexae, margine laterali membranaceae, basi auriculatae, unguiculo ligneo; bractee squamas circiter aequilongae, spathulatae, 1.2–1.4 cm. longae, truncatae et leviter erosae, mucrone rigido 2–2.5 mm. longo instructae, in strobilo maturo apice reflexo tantum exserto; semina intense violaceo-purpurea, ala inclusa 1.1–1.2 cm. longa, ala dolabriformi violaceo-maculata truncata vel rotundata.

KOREA: Quelpaert Island, Hallai-san, alt. 1000–1900 meters, October 31, November 5, 1917, *E. H. Wilson* (Nos. 9486, type, 9486a); same locality, May, June, July, August, 1907, *U. Faurei* (Nos. 1517, 1518, 1519, 1520, 1522); same locality, June, July, 1909, *Émile Taquet* (Nos. 3263, 3265, 3266); prov. South Keisho, Chiri-san, alt. 1000–1840 meters, November 16, 1917, *E. H. Wilson* (No. 9602).

This new Fir is a most interesting addition to the flora of Korea where it is confined to the volcanic island of Quelpaert and to the Chiri-san range in the south of the peninsula. It is characterized by its pyramidal habit, its deeply fissured rough bark and by its cones with exserted bracts. It combines most of the characters of the three related species *Abies nephrolepis* Maxim., *A. sachalinensis* Mast. and *A. Veitchii* Lindl. The first has

similar but less rough bark, longer leaves with median resin-ducts and the bracts of the cone are included; *Abies sachalinensis* has a cone with exserted reflexed bracts but is greenish purple in color; the leaves have median resin-ducts and the bark is perfectly smooth with prominent resin pustules; *Abies Veitchii* has a similar habit and leaves with lateral resin-ducts, but in this species the bark is always smooth and the bracts of the cone-scales are shorter or only slightly longer than the scales. The new species is certainly very distinct and its very rough bark is unique among the species of its group.

Abies koreana Wils. is an alpine species and on Hallai-san is abundant above altitudes of 1000 meters, either forming pure woods or mixed with *Betula Ermani* Cham., but the trees are not large. On Chiri-san, on the mainland, it is common above 1200 meters to the summit (1850 meters), growing with mixed deciduous leafed trees and *Picea jezoënsis* Carr., and there the trees reach their maximum development. From youth to middle age it is a handsome tree, densely branched and with its lower branches sweeping the ground; the habit is rather broadly pyramidal, and the lustrous green leaves with their white undersurfaces add character to the tree. It produces cones rather freely but less so than *A. nephrolepis* Maxim. Old trees are scrawny and not attractive. Dr. T. Nakai confused this species with *A. nephrolepis* Maxim., but when traveling together on Hallai-san I pointed out differences and he readily concurred that the two were quite distinct species.

Père U. Faurie was the first to discover this Fir, and his specimens together with those of Père Taquet have been for some years in this herbarium unnamed. When studying the Chinese Firs for *Plantae Wilsonianae* and those of Japan for my *Conifers and Taxads of Japan* I noted the difference of the Quelpaert plant and in 1917 visited the island to study the living tree. I was able to secure a supply of seeds of this Fir which were sent to the Arnold Arboretum where plants are now growing.

***Abies nephrolepis* f. *chlorocarpa* Wilson, forma nov.** A typo recedit colore viridi strobili, margine superiore squamarum tantum leviter violaceo-purpurea.

KOREA: prov. Kogen, Kongo-san, round Yutenji Monastery and on Mt. Mirokuho, alt. 600–1600 m. July 7, 1918, *E. H. Wilson* (No. 10,509).

This variety only differs from the type in the color of the cone which is green with the upper edge of the cone-scale faintly tinged with violet-purple. It is common where it grows mixed with type. This is the third instance of a green-coned variety among the species of *Abies* of the Orient with typical violet-purple colored cones — the others being *Abies homolepis* var. *umbellata* Wils. and *Abies Veitchii* var. *olivacea* Shiras. I collected seeds in the autumn of 1918 of this new variety and a stock of young plants are now growing in the Arnold Arboretum.

***Larix dahurica* var. *Principis-Rupprechtii* f. *viridis* Wilson, forma nov.**
A typo recedit strobilis viridibus plerisque majoribus.

KOREA: prov. Kogen, planted, grounds of Yutenji Monastery, Kongo-san, alt. 500 m., July 7, 1918, *E. H. Wilson* (No. 10,508 type); Makaen-an Monastery, Kongo-san planted, October 11, 1917, *E. H. Wilson* (No. 9287).

This form is characterized by its unusually large, clear green cones. Two trees are planted in the grounds of the Yutenji Monastery and one in those of the Makaen-an Monastery on the Kongo-san (Diamond Mts.). I could not find out their origin but they must have been brought from northern Korea since the Larch grows in Korea on the volcanic soils of the north only. In the extreme north the typical *L. dahurica* Turcz. is found, but most of the Larch in Korea is referable to the large-coned variety, *Principis-Rupprechtii* Rehd. & Wils. The cone of this variety is exceedingly variable in size even on the same branch, and individual trees bearing green and reddish cones are occasionally found. But I did not see wild trees with such uniformly large, green cones as those here described. I gathered seeds in 1918 and plants are now growing in the Arnold Arboretum.

TETRAPLASIA, A NEW GENUS OF RUBIACEAE

ALFRED REHDER

FLORES tetrameri, hermaphroditi; calyx late campanulatus, ovario adnatus, lobis brevibus latisque erectis; corolla infundibuliformis, extus glabra, tubo intus praesertim ad faucem piloso, lobis ovatis valvatis; stamina inclusa, 4, filamentis brevibus paulo supra medium tubi affixis, antheris oblongis dorsifixis; stylus apice 4-fidus, stigmatibus filiformibus recurvis; ovarium inferum, 4-loculare, loculis uni-ovulatis, ovulis pendentibus. Fructus drupaceus, bacciformis, carnosus; putamen subglosum, crustaceum, monospermum; semen majusculum, subglobosum, endospermate copioso; embryo parvus, rectus, cotyledonibus brevibus latis. — Frutex glaber, foliis ellipticis coriaceis, stipulis intrapetiolaribus, floribus parvis in cymis bifloris terminalibus et axillaribus, fructu bacciformi rubro.

Species unica in insulis Liukiu dictis.

This new genus apparently belongs to the tribe Vanguerieae which is characterized by uni-ovulate locules of the ovary, pendent ovules, valvate corolla-lobes, stamens inserted near the mouth, drupaceous fruit and copious endosperm. *Tetraplasia*¹ seems most closely related to *Plectronia* and *Vangueria* from which it differs chiefly in the 4-parted style, the 4-celled ovary and in the small, 2-flowered inflorescence.

Tetraplasia biflora, sp. nov.

Frutex 2–3-metralis, glaber, ramis dichotomis, junioribus quadrangularibus viridibus, vetustioribus flavo-griseis teretibus. Folia crasse coriacea, elliptica, utrinque acuta vel apice leviter acuminata, margine vix vel leviter recurva, 5–10 cm. longa et 2–5.5 cm. lata, supra lucidula, laete viridia, subtus pallide viridia, costa media supra leviter impressa, subtus leviter elevata,

¹ From Greek τετραπλάσιος, fourfold, referring to the tetramerous flowers.